

Region 1 FY 2015 Invasive Species Control Program Proposal

Refuge/complex name: Maui NWRC

Project title: Kealia Pond Ungulate Exclusion Fence

Total amount requested: \$100,000. The amount is higher than \$40,000 as this is an emergency response to an aggressive new invader (pigs).

Project description: This project will contribute to the building of a fence around the Kealia Pond National Wildlife Refuge. Kealia Pond NWR is home to two endangered waterbird species, The Hawaiian Coot ('ālae ke'oke'o; *Fulica alai*) and the Hawaiian Stilt (ae'o; *Himantopus mexicanus knudseni*). The refuge was created to protect these endangered species as well as migratory shorebirds and waterfowl that use the wetlands as wintering grounds. Historically the refuge did not have feral pigs (*Sus scrofa*). In the last five years pigs started to appear on the refuge and in the last year or two have exploded to epidemic levels. Feral pigs eat and trample endangered bird nests, eggs, and young as well as destroy waterbird habitat by uprooting native plants and creating muddy wallows. The refuge contains 200-300 acres of upland habitat all of which are currently being impacted by feral pigs. In addition, the feral pigs are regularly impacting the perimeter of the larger pond and the entirety of the smaller wetland ponds. In total, pigs likely are impacting 300-400 acres of the 700 acres refuge. In Hawaii the commonly accepted remedy for dealing with feral pigs is exclusion. We propose to build an ungulate exclusion fence along the refuge boundary and then eradicate the pigs within the refuge. This request is for funds to build the ungulate exclusion fence. Once the fence is completed, the refuge has a plan to eradicate the pigs within the fence using traps and snares.

Distinct project with well-defined objectives (10 points): The funding received would be combined with station funds and other USFWS program funds (USFWS Fire, ISST) to complete a fence along the perimeter of the refuge. Currently there is no fence around the boundary of the refuge, this allows for feral pig ingress and egress and the population of feral pigs has exploded. Without a fence control efforts are futile as more pigs can simply enter the refuge from the surrounding areas. Since this is a new problem, the refuge has not dealt with invasive pig control in the past. Building the fence will allow for feral pigs to be controlled on the refuge.

Potential for maximum control/Likelihood of success (10 points): Exclusion fences have been shown on refuges in Hawaii to be an effective method for controlling pigs. In fact they are believed to be the only method currently available to allow for feral pig eradication from an area. With a fence in place we realistically can expect to achieve 100% control of feral pigs within a short period of time. Once the fence is complete eradication efforts will begin. Significant control is expected within the first year and total control within the subsequent year. Once eradication is complete on the refuge, the likelihood is high that a pig free refuge can be perpetuated by simply maintaining the perimeter fence.

Biological benefit to priority species or BIDEH (10 points): Eradicating pigs from the refuge will directly benefit all shorebirds, waterbirds and waterfowl that use the refuge. Feral pigs are impacting the wetland habitats these birds use by destroying native plants and all plant cover as

they root up areas in search of roots and tubers. In addition, feral pigs are known to eat eggs and nestlings when they happen to encounter them. As the Hawaiian stilt nests on the ground in areas surrounding the ponds, it is likely that many nests are currently being lost to pig depredation or pig trampling. Exclusion of pigs from these sensitive wetlands will increase the habitat availability for native birds and increase the nest success of the breeding endangered Hawaiian waterbirds. The refuge was created to serve as a sanctuary for these endangered and migratory birds. CCP goals that will be addressed by this project include 1.1 Protect seasonal ponds; 1.2 Protect vegetated flats; 2.1 Enhance shrub land; 2.2 Protect buffer zone.

Sustainability (10 points): We expect that with completion of the fence and the subsequent feral pig control, that pigs will be eradicated from refuge lands. However, feral pigs will remain in the surrounding lands and we will need to maintain the fence on a regular basis to effectively exclude pigs from the refuge. Through regular predator control monitoring activities on the refuge we will be able to identify pig activity. If pigs are detected, control would be feasible with refuge staff.

Monitoring to document and evaluate project success (10 points): We have photo documentation of areas being affected by pigs as well as numerous daily pig sightings by staff, volunteers, and visitors. Once we initiate control, effectiveness of eradication will be assessed by maintenance of a snare line (if no pigs are trapped we assume no pigs are present) as well as regular transects to check for pig sign (tracks, feces, disturbed areas). These methods have proven to be successful at Hakalau NWR.

Budget: The fence will likely be completed in two phases. The first and most important phase will be completed this year. Phase one is to complete the fence along the three sides of the refuge not currently bordering the highway. The fourth side of the refuge runs along a highway with the ocean being on the other side of the highway, thus this area is not a likely source of pigs. The estimated cost for the Phase One fence is 150-180k. The refuge is requesting 100k from this grant and will use station funds and USFWS partner program funds to provide the rest of the necessary funding. Without the grant funding the station does not have enough to complete the important phase one fence. Once phase one fencing is completed, staff can and will initiate feral pig eradication. We believe that staff and partners can conduct the eradication. Funds for the fence will be obligated in FY15 and eradication will begin as soon as the fence is completed. Eradication may not be initiated until FY16 depending on the time required to complete the fence.

The refuge is also currently looking to obtain funds to complete Phase Two of the fence. Phase Two will complete the fencing of the refuge along the ocean highway. The cost of phase 2 is expected to be 100-125k.



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The nightly scene at Kealia Pond



Pig Damage

